

STATEMENT OF THE CLAIMS

1. (currently amended) A surgical clip applier, comprising:

a) an outer tubular member having proximal and distal ends and defining a longitudinal axis;

b) a clip-advancing element extending through said tubular member, and having proximal and distal ends, said distal end defining a clip-pushing end;

c) a jaw mount located at said distal end of said tubular member;

d) first and second jaws mounted on said jaw mount, at least one of said jaws being rotatable on said jaw mount relative to the other of said jaws,

said first jaw including a first clamping surface and a curved or bent distal anvil directed toward said second jaw,

said second jaw including a second clamping surface, and at least one anvil guide laterally offset relative to said distal anvil, and

at least one of said first and second jaws having a longitudinally extending clip guide, and each of said jaws having said clip guide has said clip guide recessed relative to its respective clamping surface, and

each of said first and second clamping surfaces including a plurality of proximally directed teeth;

e) at least one control element having proximal and distal ends and extending within said tubular member, said distal end of each said at least one control element being coupled to at least one said jaws; and

f) a handle assembly coupled to said proximal ends of said tubular member, said clip-advancing element, and said at least one control element and adapted

(i) to move said clip-advancing element relative to said tubular member, and
(ii) to move said at least one control element relative to said tubular member to effect clamping of said jaws.

2. (original) A surgical clip applier according to claim 1, wherein:

said first jaw includes a first longitudinally extending clip guide recessed relative to said first clamping surface and said distal anvil is curved or bent relative to said first clip guide, and

said second jaw includes a second longitudinally extending clip guide recessed relative to said second clamping surface.

3. (original) A surgical clip applier according to claim 2, wherein:

said second jaw includes a well recessed relative to a surface of the second clip guide and located distal of said second clip guide.

4. (original) A surgical clip applier according to claim 1, wherein:

said anvil on said first jaw includes first and second lateral sides, and

said at least one anvil guide on said second jaw is a pair of anvil guides, one of said pair being located adjacent said first lateral side and the other of said pair being located adjacent said second lateral side when said jaws are in a closed position.

5. (original) A surgical clip applier according to claim 1, further comprising:

g) a clip chamber adapted to store at least one surgical clip, said clip pusher extending into said clip chamber and adapted to advance a clip from said clip chamber between said jaws.

6. (original) A surgical clip applier according to claim 5, wherein:

said clip chamber is formed by at least one of said tubular member and said jaw mount.

7. (original) A surgical clip applier according to claim 5, wherein:

said clip chamber is adapted to store a plurality of clips.

8. (original) A surgical clip applier according to claim 5, further comprising:

at least one clip in said clip chamber having first and second arms and a bridge portion therebetween to together define a generally U-shaped construct, the first arm extending into a deformable retainer,

wherein when said clip pusher is advanced, said first and second arms of one of said at least one clip are moved through said first and second clip guides, and said deformable retainer of said one of said clips is bent by the anvil toward said second arm.

9. (currently amended) A surgical clip applier according to claim 2 8, wherein:

said second jaw includes a well recessed relative to a surface of the second clip guide and located distal of said second clip guide, and

said retainer of said one of said clips is bent by the anvil to extend into said well and around an end of said second arm of said one of said clips.

10. (original) A surgical clip applier according to claim 9, wherein

said retainer of said one of said clips includes a hook, and said end of said second arm of said one of said clips includes a catch, and said retainer is bent by the anvil such that said hook engages said catch.

11. (original) A surgical clip applier according to claim 8, wherein:

said at least one clip comprises a plurality of clips.

12. (original) A surgical clip applier according to claim 11, wherein:

said plurality of clips each coupled in a manner such that when a proximally located clip is retracted, said proximally located clip pulls a distally located clip backwards.

13. (currently amended) ~~An end effector assembly~~ A surgical clip applier according to claim 2, wherein:

said first clamping surface includes two surfaces separated by said first guide, and said second clamping surface includes two surfaces separated by said second guide.

14. – 15. (canceled)

16. (currently amended) An end effector assembly for a surgical clip applier, comprising:

- a) a jaw mount;
- b) a first jaw mounted on said jaw mount; and
- c) a second jaw mounted on said jaw mount,

wherein at least one of said jaws is rotatable on said jaw mount relative to the other of said jaws,

said first jaw including a first clamping surface and a curved or bent distal anvil directed toward said second jaw, and

said second jaw including a second clamping surface, and at least one anvil guide laterally offset relative to said distal anvil, and when said jaws are in a closed position, said anvil and said at least one anvil guide are laterally adjacent,

at least one of said jaws having a longitudinally extending clip guide, and each of said jaws having said clip guide has said clip guide recessed relative to its respective clamping surface and

said first and second clamping surfaces including a plurality of proximally directed teeth.

17. (original) An end effector assembly according to claim 16, wherein:

said first jaw includes a first longitudinally extending clip guide recessed relative to said first clamping surface, and

said second jaw includes a second longitudinally extending clip guide recessed relative to said second clamping surface.

18. (original) An end effector assembly according to claim 17, wherein:

said second jaw further includes a well recessed relative to a surface of the second clip guide and located at a distal end of said second clip guide.

19. (original) An end effector assembly according to claim 17, wherein:

said first clamping surface includes two surfaces separated by said first guide, and said second clamping surface includes two surfaces separated by said second guide.

20. – 21. (canceled)

22. (original) An end effector assembly according to claim 16, wherein:

said second jaw includes said clip guide, and said second jaw includes a well recessed relative to a surface of said clip guide and located at a distal end of said clip guide.

23. (original) An end effector assembly according to claim 16, wherein:

said anvil on said first jaw includes first and second lateral sides, and

said at least one anvil guide on said second jaw is a pair of anvil guides, one of said pair being located laterally adjacent said first lateral side and the other of said pair being located laterally adjacent said second lateral side when said jaws are in a closed position.

24. (new) A surgical clip applier, comprising:

a) an outer tubular member having proximal and distal ends and defining a longitudinal axis;

b) a clip-advancing element extending through said tubular member, and having proximal and distal ends, said distal end defining a clip-pushing end;

c) a jaw mount located at said distal end of said tubular member;

d) first and second jaws mounted on said jaw mount, at least one of said jaws being rotatable on said jaw mount relative to the other of said jaws,

said first jaw including a first clamping surface, a first longitudinally extending clip guide recessed relative to said first clamping surface, and a distal anvil curved or bent directed toward said second jaw and relative to said first clip guide,

said second jaw including a second clamping surface, a second longitudinally extending clip guide recessed relative to said second clamping surface, a well recessed relative to a surface of said second clip guide and located distal of said second clip guide, and at least one anvil guide laterally offset relative to said distal anvil;

e) at least one control element having proximal and distal ends and extending within said tubular member, said distal end of each said at least one control element being coupled to at least one said jaws; and

f) a handle assembly coupled to said proximal ends of said tubular member, said clip-advancing element, and said at least one control element and adapted

(i) to move said clip-advancing element relative to said tubular member, and

(ii) to move said at least one control element relative to said tubular member to effect clamping of said jaws.

25. (new) A surgical clip applier, comprising:

a) an outer tubular member having proximal and distal ends and defining a longitudinal axis;

b) a clip-advancing element extending through said tubular member, and having proximal and distal ends, said distal end defining a clip-pushing end;

c) a jaw mount located at said distal end of said tubular member;

d) first and second jaws mounted on said jaw mount, at least one of said jaws being rotatable on said jaw mount relative to the other of said jaws,

said first jaw including a first clamping surface, a first longitudinally extending clip guide recessed relative to said first clamping surface, and a distal anvil curved or bent directed toward said second jaw and relative to said first clip guide,

said second jaw including a second clamping surface, a second longitudinally extending clip guide recessed relative to said second clamping surface, a well recessed relative to a surface of said second clip guide and located distal of said second clip guide, and at least one anvil guide laterally offset relative to said distal anvil;

e) at least one control element having proximal and distal ends and extending within said tubular member, said distal end of each said at least one control element being coupled to at least one said jaws;

f) a handle assembly coupled to said proximal ends of said tubular member, said clip-advancing element, and said at least one control element and adapted

(i) to move said clip-advancing element relative to said tubular member, and

(ii) to move said at least one control element relative to said tubular member to effect clamping of said jaws;

g) a clip chamber adapted to store at least one surgical clip, said clip pusher extending into said clip chamber and adapted to advance a clip from said clip chamber between said jaws; and

i) at least one clip in said clip chamber having first and second arms and a bridge portion therebetween to together define a generally U-shaped construct, the first arm extending into a deformable retainer,

wherein when said clip pusher is advanced, said first and second arms of one of said at least one clip are moved through said first and second clip guides, and said deformable retainer of said one of said clips is bent by the anvil toward said second arm to extend into said well and around an end of said second arm of said one of said clips.

26. (new) A surgical clip applier according to claim 25, wherein:

said retainer of said one of said clips includes a hook, and said end of said second arm of said one of said clips includes a catch, and said retainer is bent by the anvil such that said hook engages said catch.

27. (new) A surgical clip applier, comprising:

a) an outer tubular member having proximal and distal ends and defining a longitudinal axis;

b) a clip-advancing element extending through said tubular member, and having proximal and distal ends, said distal end defining a clip-pushing end;

- c) a jaw mount located at said distal end of said tubular member;
- d) first and second jaws mounted on said jaw mount, at least one of said jaws being rotatable on said jaw mount relative to the other of said jaws,
 - said first jaw including a first clamping surface and a curved or bent distal anvil directed toward said second jaw,
 - said second jaw including a second clamping surface, and at least one anvil guide laterally offset relative to said distal anvil, and
 - at least one of said first and second jaws having a longitudinally extending clip guide, and each of said jaws having said clip guide has said clip guide recessed relative to its respective clamping surface;
- e) at least one control element having proximal and distal ends and extending within said tubular member, said distal end of each said at least one control element being coupled to at least one said jaws;
- f) a handle assembly coupled to said proximal ends of said tubular member, said clip-advancing element, and said at least one control element and adapted
 - (i) to move said clip-advancing element relative to said tubular member, and
 - (ii) to move said at least one control element relative to said tubular member to effect clamping of said jaws;
- g) a clip chamber adapted to store at least one surgical clip, said clip pusher extending into said clip chamber and adapted to advance a clip from said clip chamber between said jaws;

h) a plurality of clips in said clip chamber, each said clip having first and second arms and a bridge portion therebetween to together define a generally U-shaped construct, the first arm extending into a deformable retainer,

wherein when said clip pusher is advanced, said first and second arms of one of said clips are moved through said first and second clip guides, and said deformable retainer of a distalmost of said clips is bent by the anvil toward said second arm,

and further wherein said plurality of clips are coupled together in a manner such that when a proximally located clip is retracted, said proximally located clip pulls a distally located clip backwards.

28. (new) An end effector assembly for a surgical clip applier, comprising:

- a) a jaw mount;
- b) a first jaw mounted on said jaw mount; and
- c) a second jaw mounted on said jaw mount,

wherein at least one of said jaws is rotatable on said jaw mount relative to the other of said jaws,

said first jaw including a first clamping surface, a first longitudinally extending clip guide recessed relative to said first clamping surface, and a curved or bent distal anvil directed toward said second jaw and relative to said first clip guide,

said second jaw including a second clamping surface, a second longitudinally extending clip guide recessed relative to said second clamping surface, a well recessed relative to a surface of said second clip guide and located distal of said second clip guide,

and at least one anvil guide laterally offset relative to said distal anvil and when said jaws are in a closed position, said anvil and said at least one anvil guide are laterally adjacent.